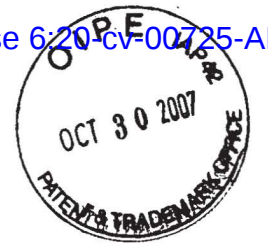
EXHIBIT 5



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	Confirmation No.: 3587
Yin L. LIONG, *et al.*	Art Unit: 2141
Application No.: 10/719,371	Examiner: Kristie D. SHINGLES
Filed: November 21, 2003	Attorney Dkt. No.: 059643.00719

For: USING POLICY BASED MANAGEMENT TO SUPPORT DIFFSERV OVER MPLS NETWORK

RESPONSE UNDER 37 CFR § 1.114

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
MAIL STOP AF

October 30, 2007

Sir:

In response to the Office Action dated June 6, 2007, and the Advisory Action dated September 27, 2007 having been duly extended from September 6, 2007, until November 6, 2007, by the attached Petition for Extension of Time, please amend the above-identified application as set forth below.

Amendments to the claims are submitted beginning on page 2.

Remarks are submitted beginning on page 8.

IN THE CLAIMS:

Please amend claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 18, 21, 25, and 27 as follows.

1. (Currently Amended) A system ~~for configuring differentiated services (Diffserv) over multi-protocol label switching (MPLS) in a network that includes MPLS tunnels~~, comprising:

a policy server that is arranged to

configure a customer policy comprising a tunnel mode,~~and~~

configure a mapping policy that maps between an experimental ~~(EXP)~~ field and a unique per-hop-behavior ~~(PHB)~~, and ~~to~~

send~~deploy~~ the mapping policy and the customer policy to interfaces of devices of ~~the~~ a network ~~that correspond~~ that includes multi-protocol label switching tunnels, corresponding to the tunnels, at least one of the network devices comprising an egress interface of one of said multi-protocol label switching tunnels, wherein the interfaces and the customer policy are associated with a same role name.

2. (Currently Amended) The system of claim 1, wherein

the customer policy further comprises a tunnel group identifier ~~and tunneling mode~~.

3. (Original) The system of claim 1, wherein

the policy server translates the mapping policy into device specific commands, and deployment is performed by deploying commands to specific devices.

4. (Currently Amended) The system of claim 1, wherein

deployment is such that the interfaces associate with at least one of input roles, output roles and multi-protocol label switching ~~MPLS~~ gateways of customer source and destination host groups.

5. (Currently Amended) An apparatus ~~for configuring Diffserv over MPLS in a network~~, comprising:

a memory;

a service application residing on the memory,

wherein the service application is arranged to configure a customer policy that comprises a tunnel group identifier and tunneling mode, the customer policy being arranged to have customer traffic mapped into multi-protocol label switching ~~MPLS~~ tunnels corresponding to the tunnel group identifier, and

wherein the service application is arranged to configure an ~~EXP-to-PHB~~experimental-to- per-hop-behavior mapping policy that is arranged to map ~~EXP~~ experimental fields to per-hop-behavior~~PHB~~;

a central processing facility that is arranged to translate the customer policy and mapping policy into device-neutral policy parameters; and

a policy consumer that is arranged to translate the device-neutral policy parameters into device-specific commands, and ~~that is further arranged~~ to ~~deploy~~ send the device-specific commands to policy targets, such that the customer policy and mapping policy are implemented across at least a portion of the network, wherein each policy target comprises a network device, at least one of the network devices comprising an egress interface of said tunnel group.

6. (Original) The apparatus of claim 5, further comprising:

a user interface that is arranged to receive the customer policy and the mapping policy.

7. (Currently Amended) The apparatus of claim 5, wherein

deployment is such that the interfaces associate with at least one of input roles, output roles and multi-protocol label switching ~~MPLS~~ gateways of customer source and destination host groups.

8. (Currently Amended) The apparatus of claim 5, wherein

the policy consumer is further arranged to attach the customer policy to the corresponding ~~MPLS~~ multi-protocol label switching tunnels and deploy the customer policy to interfaces of the attached ~~MPLS~~ multi-protocol label switching tunnels.

9. (Original) The apparatus of claim 5, further comprising:

a database for storing the device-neutral policy parameters.

10. (Currently Amended) The apparatus of claim 5, wherein

the service application comprises a tunnel group object that is arranged to create the ~~MPLS~~ multi-protocol label switching tunnels by specifying end-point routers and inter-connecting topology.

11. (Currently Amended) An apparatus ~~for configuring Diffserv over MPLS in a network~~, comprising:

a means for defining a mapping policy that maps between an ~~EXP~~ experimental field and a unique ~~PHB~~ per-hop-behavior;

a means for maintaining a customer policy, the customer policy comprising a tunnelling mode;

a means for translating the mapping policy and customer policy into device-specific commands; and

a means for sending ~~deploying~~ the device-specific commands to policy targets, wherein each policy target comprises a network device that includes an interface that is associated with a role name that is also associated with the customer policy, said interfaces including an egress interface of at least one of multi-protocol label switching tunnels.

12. (Original) The apparatus of claim 11, wherein

the customer policy includes information about a tunnel group identifier and a tunnel mode.

13. (Currently Amended) The apparatus of claim 11, wherein

deployment is such that the interfaces associate with at least one of input roles, output roles and ~~MPLS~~ multi-protocol label switching gateways of customer source and destination host groups.

14. (Currently Amended) An article comprising: a storage medium, the storage medium having instructions stored thereon, wherein when the instructions are executed by at least one device, they result in:

defining a mapping policy configured to map between an ~~EXP~~ experimental field and a unique per-hop-behavior~~PHB~~;

defining a customer policy comprising a tunnelling mode, the customer policy being~~that is~~ configured to govern the treatment of individual customer traffic;

defining a network policy that is configured to define the Diffserv treatment of aggregated traffic;

translating the mapping policy, the network policy and the customer policy into device-specific commands; and

deploying the device-specific commands to policy targets, wherein each policy target comprises a network device that includes an interface assigned a role name associated with the customer policy, at least one interface comprising an egress interface of at least one multi-protocol label switching tunnel.

15. (Original) The article of claim 14, wherein executing the instructions further results in:

generating device neutral information associated with the mapping policy, the network policy and the customer policy.

16. (Original) The article of claim 15, wherein

the device specific commands are generated from the device neutral information.

17. (Original) The article of claim 15, wherein

executing the instructions further results in: storing the device neutral information in a database.

18. (Currently Amended) The article of claim 14, wherein

deployment is such that the interfaces associate with at least one of input roles, output roles and ~~MPLS~~ multi-protocol label switching gateways of customer source and destination host groups.

19. (Original) The article of claim 14, wherein

deploying the mapping policy to the network interfaces further comprises issuing new commands to reconfigure a router based on the mapping policy.

20. (Original) The article of claim 14, wherein

the customer policy includes information about a tunnel group identifier and a tunnel mode.

21. (Currently Amended) A method ~~for configuring Diffserv over MPLS in a network~~, comprising:

defining a mapping policy configured to map between an ~~EXP~~ experimental field and a unique per-hop-behavior~~PHB~~;

defining a customer policy comprising a tunneling mode, the customer policy being ~~that is~~ configured to govern the treatment of individual customer traffic;

defining a network policy that is configured to define the Diffserv treatment of aggregated traffic;

translating the mapping policy, the network policy and the customer policy into device-specific commands; and

sending~~deploying~~ the device-specific commands to policy targets, wherein each policy target ~~comprise~~comprises a network device that includes an interface assigned a role name associated with the customer policy, at least one of the interfaces comprising an egress interface of one of multi-protocol label switching tunnels.

22. (Previously Presented) The method of claim 21, further comprising:

generating device neutral information associated with the mapping policy, the network policy and the customer policy.

23. (Previously Presented) The method of claim 22, wherein

the device specific commands are generated from the device neutral information.

24. (Previously Presented) The method of claim 22, further comprising:

storing the device neutral information in a database.

25. (Currently Amended) The method of claim 21, wherein

deployment is such that the interfaces associate with at least one of input roles, output roles and multi-protocol label switching ~~MPLS~~ gateways of customer source and destination host groups.

26. (Previously Presented) The method of claim 21, wherein

deploying the mapping policy to the network interfaces further comprises issuing new commands to reconfigure a router based on the mapping policy.

27. (Currently Amended) The method of claim 21, wherein

the customer policy includes information about a tunnel group identifier ~~and a tunnel mode~~.

REMARKS

The Office Action dated June 6, 2007, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 18, 21, 25, and 27 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 1-27 are currently pending in the application and under consideration.

Claims 1, 3-11, 13-19 and 21-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Basso et al. (U.S. Patent Application No. 2003/0231640, hereinafter "Basso") in view of Edmondson (U.S. Patent Application No. 2004/0117613, hereinafter "Edmondson"). The Office Action took the position that Basso discloses all of the elements of the claims, with the exception of "defining a customer policy and device-specific commands, wherein each policy target comprise a network device that includes an interface assigned a role name associated with the customer policy." The Office Action then cited Edmondson as alledgedly disclosing this limitation of the claims. It is respectfully submitted that the claims recite subject matter that is neither disclosed nor suggested by the combination of Basso and Edmondson.

Independent claim 1, upon which claims 2-4 are dependent, recites a system that includes a policy server that is arranged to configure a customer policy including a tunnel mode. The policy server is further arranged to configure a mapping policy that maps between an experimental field and a unique per-hop-behavior. The policy server is

additionally arranged to send the mapping policy and the customer policy to interfaces of devices of a network that includes multi-protocol label switching tunnels, corresponding to the tunnels, at least one of the network devices comprising an egress interface of one of said multi-protocol label switching tunnels. The interfaces and the customer policy are associated with a same role name.

Independent claim 5, upon which claims 6-10 are dependent, recites an apparatus that includes a memory and a service application residing on the memory. The service application is arranged to configure a customer policy that comprises a tunnel group identifier and tunneling mode, the customer policy being arranged to have customer traffic mapped into multi-protocol label switching tunnels corresponding to the tunnel group identifier. The service application is arranged to configure an experimental-to-per-hop-behavior mapping policy that is arranged to map experimental fields to per-hop-behavior. The apparatus also includes a central processing facility that is arranged to translate the customer policy and mapping policy into device-neutral policy parameters. The apparatus further includes a policy consumer that is arranged to translate the device-neutral policy parameters into device-specific commands, and to send the device-specific commands to policy targets, such that the customer policy and mapping policy are implemented across at least a portion of the network. Each policy target comprises a network device, at least one of the network devices comprising an egress interface of said tunnel group.

Independent claim 11, upon which claims 12-13 are dependent, recites an apparatus that includes a means for defining a mapping policy that maps between an experimental field and a unique per-hop-behavior. The apparatus also includes a means for maintaining a customer policy, the customer policy comprising a tunnelling mode. The apparatus further includes a means for translating the mapping policy and customer policy into device-specific commands. The apparatus additionally includes a means for sending the device-specific commands to policy targets. Each policy target comprises a network device that includes an interface that is associated with a role name that is also associated with the customer policy, said interfaces including an egress interface of at least one of multi-protocol label switching tunnels.

Independent claim 14, upon which claims 15-20, recites an article that includes a storage medium, and the storage medium have instructions stored thereon. When the instructions are executed by at least one device, they result in defining a mapping policy configured to map between an EXP field and a unique PHB. They also result in defining a customer policy comprising a tunnelling mode, the customer policy being configured to govern the treatment of individual customer traffic. They further result in defining a network policy that is configured to define the Diffserv treatment of aggregated traffic. They additionally result in translating the mapping policy, the network policy and the customer policy into device-specific commands. They also result in deploying the device-specific commands to policy targets, wherein each policy target comprises a network device that includes an interface assigned a role name associated with the

customer policy, at least one interface comprising an egress interface of at least one MPLS tunnel.

Independent claim 21, upon which claims 22-27 are dependent, recites a method that includes defining a mapping policy configured to map between an experimental field and a unique per-hop-behavior. The method also includes defining a customer policy comprising a tunneling mode, the customer policy being configured to govern the treatment of individual customer traffic. The method further includes defining a network policy that is configured to define the Diffserv treatment of aggregated traffic. The method additionally includes translating the mapping policy, the network policy and the customer policy into device-specific commands. The method also includes sending the device-specific commands to policy targets. Each policy target comprises a network device that includes an interface assigned a role name associated with the customer policy, at least one of the interfaces comprising an egress interface of one of multi-protocol label switching tunnels.

The present application provides that a tunnelling mode indicating what Diffserv code point should be carried in the IP headers then packets exit on MPLS network, as to enable transport of Diffserv over MPLS. A tunneling mode is defined in the description as a method of translating the Diffserv information in MPLS headers (labels and EXP field) into DSCP values in the encapsulated IP header when packets exit the MPLS network. It is desirable for a policy to be able to determine the method of translating Diffserv information. The claimed method is also advantageous since it allows policy to

be defined and implemented across multiple network elements, which includes a definition of a tunneling mode, as well as treatment of a particular customer's traffic.

As will be discussed below, the combination of Basso and Edmondson fails to disclose or suggest all of the features of any of the presently pending claims, and, thus, fails to provide the critical and non-obvious advantages as discussed above.

Basso generally describes a method for translating a type of service field of one protocol into multiple protocols. The method may include the step of an ingress router in a Diffserv over MPLS network receiving a packet, for example, Internet Protocol (IP) packet, from an external network. The ingress router may identify the type of quality of service, for example, forward IP packet using assured forwarding, forward IP packet using expedited forwarding, in the received packet. In one embodiment, the ingress router may identify the type of quality of service by reading the type of service field in the received packet. See Abstract of Basso.

In Basso, the type of quality of service, for example, the type of service, to be performed on an IP packet in a network implementing the Diffserv protocol may be determined by the value in a Diffserv Code Point (DSCP) field located in the type of service field in the header of the IP packet. See column 3, paragraph [0029] of Basso. The program of Basso that translates a type of service field of one protocol into multiple protocols as described in FIG. 3, may reside in disk unit 220 or in application 250. It is further noted that disk unit 220 for the edge routers 121A, 121E, in network 130 may be

configured to store a table configured to store PHB values. See column 4, paragraph [0032] of Basso.

Edmondson generally describes mapping applications that generate packets to a QoS policy on a packet routed network, such as an IP network, and automatically generating and/or changing the configuration of network elements, such as routers, to treat packets from the application according to the QoS policy. The high-level descriptions of applications and quality of service (QoS) treatment, for example, are automatically translated into low-level QoS configurations for routers. The application profiles specifying how traffic for those applications should be treated can be specified by those without detailed technical knowledge and QoS configurations automatically created for download onto customer premises equipment and, if necessary, also to access and backbone networks. See abstract of Edmondson.

It is respectfully submitted that the combination of Basso and Edmondson fails to teach or suggest all of the features of the presently pending claims. For example, Basso and Edmondson fails to disclose or suggest, at least, "send the mapping policy and the customer policy to interfaces of devices of a network that includes multi-protocol label switching tunnels, corresponding to the tunnels, at least one of the network devices comprising an egress interface of one of said multi-protocol label switching tunnels, wherein the interfaces and the customer policy are associated with a same role name," as recited in independent claim 1 and similarly recited in claim 5, 11, 14, and 21.

As discussed above, Basso merely describes a method for translating a type of service field of one protocol into multiple protocols. Basso merely discloses that the method may include the step of an ingress router in a Diffserv over MPLS network receiving a packet, for example, Internet Protocol packet, from an external network. Basso merely discloses that the ingress router may identify the type of quality of service. However, Basso's system does not disclose or suggest at least one of the network devices comprising an **egress** interface of one of said MPLS tunnels. (Emphasis Added). Edmondson also fails to disclose or suggest this feature.

Therefore, the combination of Basso and Edmondson fails to teach or suggest, at least, "send the mapping policy and the customer policy to interfaces of devices of a network that includes multi-protocol label switching tunnels, corresponding to the tunnels, at least one of the network devices comprising an egress interface of one of multi-protocol label switching tunnels, wherein the interfaces and the customer policy are associated with a same role name," as recited in the presently pending claims. As such, it is respectfully requested that the rejection of claims 1, 5, 11, 14, and 21 be withdrawn.

Furthermore, it is respectfully submitted that the combination of Basso and Edmondson fails to teach or suggest, at least, "defining a customer policy comprising a tunneling mode, the customer policy being configured to govern the treatment of individual customer traffic, and translating the mapping policy, the network policy and the customer policy into device-specific commands," as recited in independent claim 21.

Basso merely disclose determining the type of quality of service in a network by the value in a Diffserv Code Point (DSCP) field located in the type of service field in the header of the IP packet, and the type of quality of service to be performed on an IP packet in a network implementing the MPLS protocol by the value in the type of service field. Edmondson also merely discloses generating packets to a QoS policy on a packet routed network. See, at least paragraph [0013] of Basso, and abstract of Edmondson. Thus, the combination of Basso and Edmondson does not define a customer policy that includes a **tunneling mode**, the customer policy being configured to govern the treatment of individual customer traffic as recited in the presently pending claims. The combination of Basso and Edmondson does not **translate** the mapping policy, the network policy and the customer policy into device-specific commands. (Emphasis Added).

Therefore, the combination of Basso and Edmondson fails to disclose or suggest all of the features of independent claim 21 and similarly recited claims 1, 5, 11, and 14. As such, it is respectfully requested that the rejection of claims 1, 5, 11, 14, and 21 be withdrawn.

Claims 2, 12, 20, and 27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Basso in view of Edmondson, and further in view of U.S. Patent No. 7,120,150 to Chase et al. (Chase). The Office Action took the position that Basso and Edmondson teaches some features of claims 2, 12, 20, and 27. The Office Action then cited Chase to remedy the deficiencies of claims 2, 12, 20, and 27. This rejection is respectfully traversed.

Chase generally describes an Ethernet metropolitan area network 10 that provides connectivity to one or more customer premises to packet-bases services, such as ATM, Frame Relay, or IP while advantageously providing a mechanism for assuring security and regulation of customer traffic. See abstract of Chase.

There is no motivation to combine Basso, Edmondson, and Chase because Chase does not teach or suggest a policy server and sending device-specific commands to policy targets. Further, Chase does not disclose or suggest a Diffserv network or a Diffserv over MPLS network.

Even if a person of ordinary skill combined the teachings of Chase with those of Basso and Edmondson, the person would not have arrived at the subject matter of the independent claims. The edge router taught particularly with reference to figure 6 of Chase does not map a customer descriptor to an experimental EXP field. Chase does not disclose or suggest that an MPLS QoS identifier is carried by packets in the MPLS tunnels.

Furthermore, Chase does not teach or suggest configuring an egress router of an MPLS tunnel. None of Basso, Edmondson and Chase teaches or suggests translating the mapping policy, the network policy and the customer policy into device specific commands and sending device specific commands to the policy targets. Even if the teachings of Chase combined with those of Basso and Edmondson, it would not have been obvious to a person of ordinary skill in the art to derive Basso, Edmondson and

Chase to arrive at the subject matter of the independent claims. As such, it is respectfully requested that the rejection of claims 2, 12, 20, and 27 be withdrawn.

In view the foregoing, it is respectfully asserted that the combination of Basso, Edmondson, and Chase fail to teach or suggest all of the features of independent claims 1, 5, 11, 14, and 21 and dependent claims 2-10, 13, 15-19, and 22-27.

Claims 2-4, 6-10, 12-13, 15-20, and 22-27 are dependent upon claims 1, 5, 11, 14, and 21, respectively. Accordingly, claims 2-4, 6-10, 12-13, 15-20, and 22-27 should be allowed for at least their dependence upon claims 1, 5, 11, 14, and 21, and for the specific limitations recited therein.

In view of the above, it is respectfully submitted that the claimed invention recites the subject matter which is neither disclosed or suggested in the cited prior art. Also, it is respectfully submitted that the subject matter is more than sufficient to render the claimed invention unobvious to a person of ordinary skill in the art. Applicants therefore respectfully request that each of claims 1-27 be allowed and this application be passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

Sejoon Ahn
Registration No. 58,959

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

SA:dc

Enclosures: Petition for Extension of Time (2 Months)
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Check No. 17379